

# How Big Data Enables Economic Harm to Consumers, Especially to Low-Income and Other Vulnerable Sectors of the Population

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**Executive Summary:** “Big Data” platforms such as Google and Facebook are becoming dominant institutions organizing information not just about the world but about consumers themselves, thereby reshaping a range of markets based on empowering a narrow set of corporate advertisers and others to prey on consumers based on behavioral profiling. While big data can benefit consumers in certain instances, there are a range of new consumer harms to users from its unregulated use by increasingly centralized data platforms.

- A. These harms start with the individual surveillance of users by employers, financial institutions, the government and other players that these platforms allow, but also extend to forms of what has been called “algorithmic profiling” that allow corporate institutions to discriminate and exploit consumers as categorical groups.
1. Behavioral profiling allows advertisers to offer goods at different prices, what economists call price discrimination, to extract the maximum price from each individual consumer. Such online price discrimination raises prices overall for consumers, while often hurting lower-income and less technologically savvy households.
  2. Behavioral profiling is used by especially seedy companies to target a variety of financial and economic scams at vulnerable populations most likely to fall prey to their offers
  3. Examples include subprime mortgages targeting vulnerable consumers with worse deals based on racial and economic profiling.
  4. Advertising-driven platforms continued to benefit from scam “mortgage modification” and payday lender advertisers exploiting financially distressed households in the wake of the financial crisis.
- B. User data is economically valuable, yet big data platforms manage to extract data from users with little financial compensation.
1. Data platforms’ revenue is based first on harvesting the largely free labor providing user-provided content on the web (search, videos, reviews on Amazon, shared social media content) and encouraging users to provide private data without compensation.

2. Users undervalue the personal data they provide and most users don't even know their data is being shared with third parties.
  3. Lack of competition means that there are not alternative services offering to share the economic value of users' content/data with those users, so the economic value of content & data flows largely for free to the big data platforms. Users are largely disempowered from demanding protection of their privacy, thereby increasing the flow of user data to the data platforms and advertisers.
- C. To deal with these consumer harms, regulators should implement a combination of strengthening individual user control of their data, structural changes in the market to encourage a more accountability to consumers in the marketplace, and public interest regulation of the larger big data platforms to ensure that they are held accountable, particularly in the realm of financial services, in areas where the market will not discipline their actions.
- D. Information asymmetry between big data companies and consumers is easily converted into economic inequality when one side of every transaction has so much more knowledge about the other during bargaining. The increasing information asymmetry in consumer markets, driven by data mining and facilitated by online services, may be an additional significant cause of this overall increase in economic inequality we have seen over the last four decades.

## Introduction

Data has been called the “new oil” of the information age, an asset used by corporations to reshape markets and increase their market power and profits.<sup>1</sup> On the Internet, we see the rise of new “big data” platforms such as Google, Amazon, Apple, Facebook and others that accumulate ever increasing information on consumer behavior, interests and needs. While this data unquestionably increases the efficiency of the economy in numerous ways, what is in question is whether consumers are ultimately benefitting significantly from those productivity gains or whether that surplus is being largely captured by these “big data platforms.” Worse, the increasing loss of control of private data by individuals seems to be leaving them vulnerable to economic exploitation by a range of corporate actors.

These big data platforms, what Jaron Lanier calls “siren servers” in his book, *Who Will Own the Future?*, attract consumers with a variety of services that encourage those users to part with personal data, which in turn is analyzed and combined with private information from other users in massive networks of computers. These companies use that analysis to reshape markets – “disrupt” in Silicon Valley parlance – and channel an ever greater share of economic wealth into the hands of these big data platforms.

There is a particular concern that “free services” on the Internet use consumer data for the benefit not of those users but for third party corporate customers of those data platforms, particularly advertisers who drive a large portion of the revenue model of the online Internet economy. While much of that advertising no doubt serves traditional advertising goals of strengthening brand awareness or promoting new products to consumers, the rise

of behavioral profiling of consumers using the private data extracted by these big data platforms increases the use of advertising for more exploitative practices.

Big data platforms facilitate advertisers engaging in user profiling that aids those companies in extracting the maximum profit possible from consumers in the overall economy. Advertisers can deliver ads not just to the users most likely to be interested in the product but can tailor prices for individual consumers in ways that can maximize the revenue extracted from each purchaser. Consumers can be profiled and offered higher prices, unaware that other customers are getting better deals, while financially struggling households are tagged as vulnerable and offered economically exploitative services such as payday and subprime loans.

Since the rise of big data has coincided with the stagnation of incomes for average households, policy makers should be raising concerns that, alongside traditional explanations of rising inequality such as deunionization, globalization, and automation of unskilled jobs, the concentration of data into ever fewer corporate hands is helping to drive economic inequality in the broader economy.

While big data can benefit consumers in certain instances, regulators need to take action to address new consumer harms to users from its unregulated use by increasingly centralized data platforms. The Federal Trade Commission has itself highlighted some of these problems in a number of recent reports,<sup>3</sup> as well as litigation against companies engaged in deception in collecting personal data,<sup>4</sup> but it is clear that additional regulation and laws are needed to address the full scope of the harm to consumers.

These harms start with the individual surveillance of users by employers, financial institutions, the government and other players that these platforms allow, including denial of employment or scholarships based on what people post to their personal social media sites. While a few states have taken action to restrict misuse of social media data to directly, there is a broader need for federal action.

However, such individual surveillance is less of a danger to consumers than the broader aggregation of data – so-called “algorithmic profiling” --and the ways it allows companies to discriminate and exploit consumers as categorical groups. Much of this profiling is invisible to consumers, making the need for public action all the more urgent and needed. Big data platforms collect so much information about so many people that correlations emerge that allow users to be slotted into marketing categories in unexpected and often unwelcome ways. Increasingly, every transaction, every website viewed, and every action online generates a data trail swept into the data platforms online. Most websites invite dozens of companies to track users on their site and follow them across the web.

It is largely because of the ability to profile users and more precisely target ads that online advertising as a whole has exploded and become the largest advertising sector in the United States. In fact, 2013 was the year Internet advertising surpassed broadcast advertising revenues in the United States for the first time.<sup>5</sup> Online advertising amounted to \$42.8 billion in the United States<sup>6</sup> and \$117.2 billion globally<sup>7</sup> that year.

## **What Advertisers Get for Their Money: Knowing What People Will Buy and the Price At Which They Will Buy It**

The question is what do advertisers get for their money? No doubt, user profiling helps advertisers more effectively identify the customers most likely to be interested in their products. However, the darker explanation is that such profiling also facilitates tailoring prices to individual consumers in ways that maximize revenue extracted from each transaction.

This ability to charge different prices to different customers for the same good or service, what economists call “price discrimination”, is based on the reality that people have different maximum prices they are willing to pay. And profiling consumers helps advertisers identify this “pain point” for each customer and offer a different price to each customer matching that maximum price they are willing to pay without them knowing that other deals are available.<sup>8</sup> Some economists argue that where consumers know all pricing options, they can potentially benefit from price discrimination, as when airline passengers choose between a cheap price at an inconvenient time to save money, which can fill seats, increase revenues for airlines and increase options for different customers.<sup>9</sup> But when people either don’t know about better deals or don’t easily have the ability to access them, such price discrimination is far more likely to hurt consumers.

For example, a 2012 *Wall Street Journal* report found that major companies, including Staples, Home Depot, Discover Financial Services and Rosetta Stone, were systematically using information on user physical locations to display different online prices to different customers.<sup>10</sup> More disturbingly, contrary to any hope this might benefit low-income bargain hunters, the paper found that higher-income locations were offered better deals than low-income communities, because those poorer areas had fewer local retail outlets competing with the online stores. Credit card companies like Capitol One show different offers with different credit card deals based on view locations and guesses by the company about their income.<sup>11</sup>

In search advertising, this differential pricing overwhelmingly takes the form of web coupons offered to some people but not others based on their behavior and demographic data. As Ed Mierzwinski, consumer program director for the United States Public Interest Research Group (USPIRG) noted in an interview, companies “offer you, perhaps, less desirable products than they offer me, or offer you the same product as they offer me but at a higher price.”<sup>12</sup>

Economists like Nobel Prize Winner Joseph Stiglitz, who pioneered what has been called “information economics”, detail the economic harm to consumers from such differential pricing. When consumers don’t know all their price options, it creates “market power in product markets” which firms exploit through sales and “other ways of differentiating among individuals who have different search costs” in identifying different price options.<sup>13</sup>

## **Big Data Platform Price Discrimination Increases Prices Overall for Consumers**

Many had a vision of an online economy where consumers could quickly compare prices, but studies have shown that hidden discounts, the posting of multiple versions of the same product, and other “price obfuscation” strategies are designed to frustrate consumers and keep prices up.<sup>14</sup> Where prices are obscured and sellers impose price discrimination, economic models generally show that overall prices in the economy will end up higher than any model where consumers knew all prices.<sup>15</sup>

This argument is not one initially made by critics of the online economy but has actually been made by boosters of the opportunity for companies to profit from it. Academic Hal Varian has a long history of examining various models of price discrimination and in 2005, he was appointed Chief Economist for Google. That same year, he co-authored an article in the industry-based academic journal *Marketing Science* touting the gains for companies engaging in online price discrimination, particularly against what the authors labeled “myopic” consumers who are unaware of how their data is used to structure different prices for them.

Varian and his coauthor argued that “significant initial investments in information technology can lead to competitive advantages” that locks in user loyalty while collecting personal information to make price discrimination profitable.<sup>16</sup> In a foreshadowing of both Google’s and other data platforms’ practices, the article argued for companies to lock-in users to particular services, block anonymous participation, and seek out the coveted “myopic” consumers to increase profits.<sup>17</sup> While various economic models yielded different results in Varian’s and his co-author’s analysis, they generally agreed that in many cases, any economic value added to the economy due to increased efficiencies “is entirely due to the increased profit received by the seller” while in other cases, consumer welfare actually falls overall.<sup>18</sup> In particular, the “myopic” consumers generally lose out financially under price discrimination using targeted consumer profiling.

Recent research on online advertising reinforces this analysis of consumer loss due price discrimination combined with consumer profiling. Comparing traditional regimes of mass-market advertising to online advertising, researchers Rosa-Branc Esteves and Joana Resende found that average prices with mass advertising were lower than with targeted online advertising.<sup>19</sup> Similarly, Benjamin Reed Shiller found that where advertisers know consumers willingness to pay different prices, companies can use price discrimination to increase profits and raise prices overall, with many consumers paying twice as much as others for the same product.<sup>20</sup>

## **Big Data Platforms Enable Racial Profiling and the Exploitation of the Most Economically Vulnerable Groups in Society**

Once upon a time, people celebrated the Internet as promising a new era where shoppers invisible on the web could not be judged based on their race or otherwise discriminated against. However, online behavioral targeting can combine a home address and a few more

characteristics to create an almost perfect proxy for race. If anything, such online discrimination can be more vicious for its subtlety and invisibility since customers don't even know what prices are being offered to other people of different races or socioeconomic circumstances. And it's not even clear that current laws could fully address such harms if they could be made visible, since as George Mason University professor Rebecca Goldin noted in a 2009 article, what would be the legal status if banks used "the kind of music one buys to determine his or her loan rate?"<sup>21</sup>

Such online "weblining" has been well documented online. Along with the price discrimination based on location discussed above, companies like Wells Fargo listing houses for sale have collected zip codes of online browsers and directed those buyers towards neighborhoods of similar racial makeup.<sup>22</sup> This online discrimination parallels the broader reality of companies like Wells Fargo illegally steering an estimated 30,000 black and Hispanic lenders from 2004 to 2009 into more costly subprime mortgages or charging them higher fees than comparable white borrowers.<sup>23</sup>

As *ColorLines* magazine has noted, a "user's browsing history, their location and IP information...combined with information available in Google's public data explorer (including US census, education, population, STD stats, and state financial data) presumably could also be folded into the personalized search algorithm to surmise a lot more than your race."<sup>24</sup> Latanya Sweeney in an academic article describes how on sites detailing legal information about individuals, when people searched for a name "on the more ad trafficked website, a black-identifying name was 25% more likely to get an ad suggestive of an arrest record."<sup>25</sup>

What is disturbing is that people online can find themselves losing opportunity as their ongoing behavior or interests lump them in with the "wrong" racial or other group in the algorithms of big data platforms. For example, Kevin Johnson, a condo owner and businessman, found that after returning from his honeymoon, his credit limit had been lowered from \$10,800 to \$3800. The change was not based on anything he had done but, according to a letter from the credit card company, he had shopped at stores whose patrons "have a poor repayment history."<sup>26</sup> If your habits associate you with particular categories or groups, you will invisibly find opportunities opening up or closing down based on how data algorithms choose to place you. Similarly, whether you get a refund when making a complaint to a company will often be heavily influenced by the categories in which data analysis places a caller.

For less ethical companies, big data gives them the ability to seek out the most vulnerable prospects to exploit and entice them with scams and misleading offers. Such niche scams and economically exploitive relationships can be focused on those most vulnerable to the scam's appeal, while remaining essentially invisible to everyone else, including reporters and researchers trying to evaluate the harms from online advertising methods.

The data broker industry even has a term – "sucker lists" – for the poor, old and less educated groups that they compile for such unethical marketers. For example, people who reply to sweepstakes offers are put onto a list by one data broker company and offered to advertisers as an "ideal audience for...subprime credit offers" and other enticements. Other

lists include “suffering seniors” who are identified as having Alzheimer’s or similar maladies.<sup>27</sup> The Federal Trade Commission itself has noted that when companies use a consumer’s financial status to send targeted advertisements, it is not covered by FCRA if they don’t cover specific pre-approved offers of credit.<sup>28</sup>

Search advertising is especially attractive to companies looking for micro markets of vulnerable targets for scams, since the combination of keyword searches and demographic data allows what writer Jaron Lanier calls the “ambulance chasers and snake oil salesmen” of the Internet to get targeted access to victims. The “minimalist link” of a search ad focuses on lead generation for such companies where users self-select into the advertisers’ target group by clicking on the link.<sup>29</sup> For example, one company ran advertisements for poisons and chemicals on the Google Group page alt.suicide.methods where users were discussing how to kill themselves.

Reflecting the more comprehensive problems in search advertising targeting the vulnerable, Google in August 2011 agreed to pay a \$500 million civil forfeiture to the federal government, one of the largest in history, as part of a settlement for the company knowingly allowing illegal pharmacies to target users on its search engine.<sup>30</sup> The company had been put on notice by the government as early as 2003 that companies were selling illegal steroids and fake prescription medicine to desperately ill individuals, yet the company not only accepted the ads but its staff helped foreign-based pharmacies write their ads for maximum effectiveness. It was only when a felon, David Whitaker, collaborated with the government in a sting operation that the full extent of the company’s collaboration with such scam and illegal marketers was fully documented, including that knowledge of the collaboration went all the way up to CEO Larry Page.<sup>31</sup>

### **Big Data Platforms Helped Facilitate the Subprime Mortgage Debacle and Its Aftermath**

Big data lay at the heart of the subprime mortgage and overall financial meltdown the nation suffered at the end of the last decade. Data crunchers were key to manipulating financial markets and securities throughout the financial industry and big data platforms were critical parts of the marketing machine that pushed subprime financial products out to the most vulnerable members of the American public.

In fact, by the mid-2000s, the lion’s share of the online advertising economy was being driven by subprime and related mortgage lenders. As Jeff Chester of the Center for Digital Democracy said back in 2007 “Many online companies depend for a disproportionate amount of their income on financial services advertising, with subprime in some cases accounting for a large part of it.”<sup>32</sup> As the subprime frenzy was hitting its height that year, in a July 2007 Nielsen/Netratings survey of online display advertisers, the top five of those advertisers were all involved in the mortgage lending industry to some extent, delivering almost \$200 million in monthly revenue to online advertising companies like Google, MSN, and Yahoo! <sup>33</sup> These delivered hundreds of billions of views of online ads helping drive the frenzy of refinancing and subprime mortgages with ads like the ubiquitous “LowerMyBills” and other online enticements.

These numbers are only for display ads online; search advertisers don't share data on specific revenue from particular companies, but reports at the time showed that mortgage loan companies were paying top dollar for keywords like "mortgage" and "refinance" with prices going for as much as \$20 to \$30 each time a user clicked on a search ad.<sup>34</sup>

Online companies would then sell information about the users identified as likely prospects to mortgage companies, which in turn would contact them. Customers targeted through these online leads for subprime mortgages were disproportionately low income, black and Latino. Usually unaware that better deals existed, studies showed that people of color offered these subprime mortgages were 30% more likely to be charged higher interest rates compared to white borrowers with similar credit ratings.<sup>35</sup> Burdened with unrealistic "teaser rates" that appeared affordable, these loans would explode into unmanageable debt in later years.<sup>36</sup> This was the most toxic version of price discrimination possible and led to one of the largest scale destructions of wealth among low-income and minority communities in the modern era<sup>37</sup>, even as the data platforms that helped facilitate this process continued to explode in revenue and profitability.

Even today, the financial industry remains bedrock of revenue for advertising-driven big data platforms. According to WordStream, a company specializing in helping companies bid effectively on Google Ads, the three most expensive categories of keyword searches as measured by cost per click are in financial services (insurance, loans and mortgages), with 45.6% of the top 10,000 advertising keywords falling in those categories.<sup>38</sup>

Depressingly, bottom-feeding subprime mortgage offers were replaced in the aftermath of the financial crisis by companies exploiting the financial distress of families, particularly by payday loan lenders who offer extremely high-interest loans in exchange for a commitment for repayment from a person's next paycheck.<sup>39</sup> Such loans have been banned or severely restricted as exploitative in multiple states and the Consumer Financial Protection Bureau (CFPB) has held hearings specifically on abuses in the industry, with CFPB head Richard Cordray saying "some payday lenders [are] engaged in practices that present immediate risk to consumers and are clearly illegal."<sup>40</sup> Their ubiquitous presence in online ads is not an accident; in fact, data platforms have actively solicited ads from the industry, including Google setting up a trade booth at the annual convention of the "Online Lenders Alliance," a trade group made up primarily of payday lenders. Industry observers like Robert X. Cringely, who has covered Silicon Valley for over twenty-five years, argue that Google buries bad news about the industry in its search results, "below the fold as we used to say in the newspaper business."<sup>41</sup>

Whether or not, as Cringely argues, data platforms do hide negative information about the evils of many of their online financial advertisers, what is true is that they proliferate in the feeds of low-income Internet surfers. As many families saw their mortgages balloon above the value of their homes, an array of illegal scam "loan modification" firms appeared promising to help homeowners in advertisements appearing when people searched for keywords such as "stop foreclosure," then taking money from those families without helping them at all. Despite scathing reports highlighting the problem by consumer group Consumer Watchdog in 2011,<sup>42</sup> Google refused to stop until ordered by the Treasury

Department using its TARP authority to shut down ads by 85 of the companies. “Many homeowners who fall prey to these scams, initially do so through these Web banners and other Web advertising,” Christy Romero, Deputy Special Inspector General for the Troubled Asset Relief Program (TARP), said in an interview.<sup>43</sup> Similarly, the data broker and credit score company Equifax kept selling lists of people late in paying their mortgages to fraudulent marketers until the FTC fined Equifax \$1.6 million in 2012 for the practice based on companies bilking those customers of millions of dollars.<sup>44</sup>

In this way, the data and privacy lost by consumers has translated into tens of billions of dollars in profits for the data platforms and the enabling of exploitation by predatory companies using that data for an even larger scale of economic losses by consumers.

### **Consumers Lose Financially as the Value of their Personal Information Flows to Big Data Platforms**

Beyond losses from price discrimination and from direct scams using targeted data, consumers lose out online as the value of their personal data is coopted for the profits of the big data platforms. In a broad sense, users lose out doubly since the data platforms not only sell their data to advertisers but also use the free labor and data provided by all users collectively to attract users to their sites in the first place. While users may vaguely feel that they are giving up some control of their data in exchange for services provided by big data platforms like Google, Facebook, those companies actually depend on the free labor of individuals posting their updates to Facebook, reviews on Amazon, edited stories on Wikipedia, and their links on blogs to make their services valuable.

In fact, Google’s original innovation in search technology was built around harvesting the diffuse labor of people across the Internet. Its original Page Rank algorithm used the links to other websites created by web site creators across the Internet as a tool to assess and rank the likely value of websites containing similar information or keywords, an algorithm which has only been strengthened by tracking the sites for which people search.<sup>45</sup> Each click adds to the algorithm that can direct users with similar searches and interests to see the same link highly ranked as well. The more people find and use other people’s content via Google, the better Google’s algorithm becomes, reinforcing the precision and strength of its search engine vis a vis any challenger search technology which would lack access to the network of users and the information they generate on search preferences.<sup>46</sup> Similarly, social networks like Facebook and LinkedIn depend on the daily infusion of writing and links by their users to provide value to other users and use experiments on the behavior of those users to strengthen their algorithms.<sup>47</sup>

These big data platforms have positioned themselves to take advantage of what media studies professor Clay Shirky has labeled a profound shift in models of product where “user generated content”, what was once called “free” time, becomes incredibly valuable when aggregated.<sup>48</sup> That so much seems free on the Internet is just the flip side of people providing so much free labor without being paid themselves and then accessing it on big data platforms. Nicholas Carr has referred to this as “digital sharecropping” where the Internet “provides an incredibly efficient mechanism to harvest the economic value of the

free labor provided by the very many and concentrate it into the hands of the very few.”<sup>49</sup> Recognizing the economic gain from user production of information, companies like Facebook go out of their way to encourage the maximum sharing of data possible, using what media activist Cory Doctorow calls “very powerful game-like mechanisms to reward disclosure” with plenty of rewards in the form of “likes and attention from friends and family when they post.”<sup>50</sup>

The incredibly outsized stock valuations of web-based firms such as Amazon (with its user-generated product reviews), Facebook (with its user-generated content and social links) and Google (search for others’ content, user-generated YouTube videos etc.) can best be understood in terms of the free labor and data each is harvesting. For example, when Facebook went public with its initial public offering (IPO), one analyst estimated that users at Facebook had generated 2.1 trillion piece of “monetizable content” between 2009 and 2011, which translated into about \$100 billion of the value of its stock market capitalization-- with each Facebook user contributing around \$100 of user labor to the stock wealth created for Mark Zuckerberg and his fellow shareholders.<sup>51</sup>

Analysts like Michael Fertik, CEO of the company Reputation.com, which helps keep their information anonymous online, estimates that data can be worth in the thousands of dollars each year to all the data platforms a consumer may use.<sup>52</sup> One other measure of the value of use data is the fight Apple had with publishers over terms for sales of subscriptions iTunes; most were willing to pay 30% of their subscription price to Apple but balked at Apple retaining control of data on subscribers, indicating that publishers valued the user data at more than 30% of the cost of any purchase online.<sup>53</sup>

Yet while publishers negotiate hard over control of that personal data with Apple, the consumers themselves generally give their personal data away for free without a thought. Consumers underestimate the value of their data and lose out continually in these online transactions. De facto they are in a barter relationship with big data platforms, trading data for access to those “free” services—and the economic history of barter is that less sophisticated partners in such exchanges inevitably lose financially.<sup>54</sup>

Multiple studies show most consumers don’t even understand that their private information used by big data platforms are also being shared with third parties to assist in marketing advertising.<sup>55</sup> Users rarely read the fine print when they click acceptance of the terms of service on these sites and receive little information about the consequences of sharing their data. Yet this sharing of data with third parties doesn’t reflect consumer preferences: a 2012 Pew survey found 73 percent of the American public were opposed to search engines even tracking their search history even to improve search results and 68 percent opposed using user data to help advertisers target ads.<sup>56</sup> Users who understand that such sharing is happening express frustration that they lack the capacity to stop it<sup>57</sup>, even though the desire to stop such tracking, aggregating and sharing of data has been increasing.<sup>58</sup>

Notably, the former Federal Trade Commissioner J. Thomas Rosch expressed concern in his 2013 opinion about Google that companies like Google are engaged in “telling ‘half-truths’—for example, that its gathering of information about the characteristics of a

consumer is done solely for the consumer's benefit, instead of also to maintain a monopoly or near-monopoly position."<sup>59</sup>

Most data platforms declare that a single click signing up for a service creates "consent" by any user for whatever purpose the companies chooses to use their data. The problem is that if few users know how the data is actually being used, such consent is meaningless. And since the companies themselves don't even know the economic value of user data at the time it is shared, often waiting months or years to figure out how to monetize it, it's extremely unclear how users can be in a position to effectively negotiate a fair economic value for their data when they aren't and can't be told about its potential future use.

### **Industry Concentration Decreases Market Pressure on Data Platforms to Prevent Economic Harm to or to Share Economic Value of Data with Users**

In too many data platform services, one company is so dominant that consumers have little leverage to demand greater control of their data and less harmful use of that data. Whether Google in search advertising, Facebook in social networks, Amazon in online retail, Netflix in video streaming, the dynamics of control of user data strengthen concentration in particular sectors.

Part of this are network effects that mean the more people participating on a service, the more valuable it is to other users of that service. Part of the drive to concentration is that as companies collect user data, they gain competitive advantage against any potential challenger who will lack that user data in setting up any rival service. Such data can be redeployed by dominant players not just to strengthen their position in existing services but used in related new services to expand their economic reach. In this way, you see Google, Amazon, Apple and Facebook expanding rapidly into a multiplicity of emerging data-related fields, making it extremely hard for upstart companies to get a toehold except in very specific niches.<sup>60</sup>

The upshot of this dynamic is that the marketplace is doing little to create options for consumers that might alleviate the misuse of consumer data, better protect user privacy or encourage big data platforms to better compensate users who are willing to share their data.

There has recently been a flurry of political interest in abusive practices by data brokers who buy and sell personal data, with major reports released by both the Senate<sup>61</sup> and the Federal Trade Commission.<sup>62</sup> While the consumer harm detailed in those reports are important, it is worth noting that the companies involved are relative minnows in the big data ecosystem compared to the major big data platforms —and are likely to be even more marginal over time. Experian is one of the largest at \$4.8 billion in sales per year<sup>63</sup> while Acxiom, a data broker often cited as having one of the largest datasets on consumers, has only about \$1 billion per year in revenue.<sup>64</sup> Even collectively, these data brokers are dwarfed by a company like Google with over \$60 billion in annual revenue.

This is largely due to the fact that most data brokers do not control unique information about individual consumers but instead are merely middlemen. While smart entrepreneurs running such firms were able to position themselves to benefit as corporate advertisers began engaging in targeted advertising, power in the data-driven economy is going to inevitably move to data platforms like Google, Facebook and other companies that continually generate new unique data on consumers. As Kenneth Cukier and Viktor Mayer-Schönberger argued in their recent book, *The Rise of Big Data: A Revolution That Will Transform How We Live, Work, and Think*, the initial skills of data brokers is inevitably losing out to companies “holding large pools of data and being able to capture ever more of it with ease...large data holders will flourish as they gather and store more of the raw material of their business, which they can reuse to create additional value.”<sup>65</sup>

The key importance of and market power by data platforms controlling unique data is reflected in recent acquisitions. Facebook’s buyout of the photo-sharing company Instagram for \$1 billion and of the global texting company WhatsApp for \$19 billion were based on gaining control of the massive user base and unique data generated by those users.<sup>66</sup> Google has largely focused on growing its own data sources but it’s recent large percentage investment in the taxi service Uber reflects its interest in having a stake in the transit and logistics data being generated by users of that company.<sup>67</sup> And the potential scope of Google’s data ambition is reflected in its acquisition of Skybox Imaging, which puts low-flying satellites into orbit which photograph the whole planet twice a day with the accuracy to count cars in stores’ parking lots and predict those company’s next quarter sales figures or estimate the likely price of grain months in advance based on surveying the health of cropland across the earth.<sup>68</sup>

For this reason, as the accumulation of all this data is in increasingly fewer corporate hands with little market pressure on those companies to respect the privacy of users, it is incumbent on federal regulators to take action to prevent those big data platforms from facilitating the use of user data in ways that harm consumers, particularly low-income, minority and other vulnerable members of the population.

### **The Federal Government Should Take Action to Protect Vulnerable Consumers**

What is clear is that big data platforms depend on aggressive practices that undermine user control of their data and largely serve third party interests such as advertisers. Given the size and dominance of many of these data platforms in their particular sectors, equally aggressive and far-reaching action by the federal government is needed to prevent the ongoing harms to consumers, particularly the most vulnerable members of society, detailed in these comments. What is needed is a combination of strengthening individual user control of their data, structural changes in the market to encourage a more accountability to consumers in the marketplace, and public interest regulation of the larger big data platforms to ensure that they are held accountable, particularly in the realm of financial services, in areas where the market will not discipline their actions.

**Strengthen User Control of Personal Data:** One thing regulators should keep in mind is that merely encouraging “self-help” actions by consumers is not likely to make a significant difference. While a number of companies offer technological tools to supposedly stop tracking by advertisers or increase the anonymity of users online, they largely fail in the face of determined tracking of users by online companies. Julia Angwin details a year-long quest to evade online trackers in her book *Dragnet Nation* and after testing many of the best of the technological tools available (with the tech support available to a top reporter at the *Wall Street Journal*), her conclusion was that it was largely a hopeless enterprise.<sup>69</sup> Other analyst like Cukier and Mayer-Schönberger agree: “In the era of big data, the three core strategies long used to ensure privacy—individual notice and consent, opting out, and anonymization—have lost much of their effectiveness.”<sup>70</sup>

Given the amount of personal data already out there, even anonymous users are reidentified relatively easily by comparing the language or stray information posted under any pseudonym to information already known about individual consumers. And even where a user abandons all use of “cookies” online, advertisers can “fingerprint” their web browser by cataloging the unique configuration of plugins, settings and other features of a browser.<sup>71</sup> Especially for low-income families with less technological savvy, such solutions are almost completely useless.

In March 2012, the Federal Communication Commission (FTC) issued a report, *Protecting Consumer Privacy in an Era of Rapid Change*, that sought to outline a framework for privacy protection for both businesses to adopt voluntarily and, where necessary, policymakers could mandate as part of general consumer protection.<sup>72</sup> The framework includes so-called “Do Not Track” rules for web browsers such as Google’s Chrome browsers to ensure user activity can be hidden from advertisers, data portability to allow users to switch easily between email and social networking services and take their data with them, and greater transparency and choice by consumers on where and how they share their data with companies.

However, the law will need to be changed to create a real regime of regulatory and court enforcement against companies violating such anti-tracking and anonymity rules protecting consumers. Up to now the courts have largely failed to recognize a private harm from disclosure of user data to third parties.<sup>73</sup> New laws or regulations need to make clear that violation of laws protecting user data create a private right of action by users with clear default economic damages for violations.

The FTC framework also suggests companies be required to obtain “express content” when collecting “sensitive data,” such as health and other data regulators might deem most subject to abuse.<sup>74</sup> Given the use of a wide range of data for profiling of the financially vulnerable online, such explicit consent should extend to almost all data collected by data platforms beyond the most basic, publicly accessible data about individuals. Detailed and explicit “opt-in” consent should be required for any use of user data with specific express consent required for any change or new use of the data in the future.

While data platforms may express worries that such consent rules will deter use of their services, the very reluctance of consumers to invest the time to complete the process of

giving such consent would actually serve a positive purpose in encouraging big data platforms to create economic incentives for users to do so. By jumpstarting a real market for user data, it would open up more space for new companies to compete on incentives at that point of friction and potentially encourage all data platforms to either better protect privacy or share some of the profits of the industry directly with users. Limiting such an opt-in requirement for sharing data to larger, dominant players would avoid the problem that general opt-in requirements might lead to users favoring large players to avoid the transaction costs of dealing with multiple, smaller players for their online needs.<sup>75</sup>

One other way to address the fundamental information asymmetry between big data platforms and users in pricing the value of user data<sup>76</sup> would be to adopt proposals that would require greater transparency in how companies monetize that data, such as regular reports on the Cost Per Click or other payments companies receive based on user activities.<sup>77</sup> Such information, along with greater data portability between services, might help further a market where users “vote with their feet” (or, more accurately, their data) and demand either a greater share of big data platform profits based on that data, switch to competing providers for a better deal, or withhold their data altogether after recognizing the pervasive use by third parties that they may not want tracking them. Any of those outcomes would lessen the consumer harm from that big data platform control of user data.

**Enforce Structural Changes in Market to Increase Competition:** However, given the lack of options for consumers in many online industry sectors where one or only a few companies dominate, depending on empowering consumers is only a limited tool. As Julia Angwin notes, helping put a price on personal data only goes so far: “Before we had a minimum wage and limited work hours, people were willing to ‘sell’ their labor at extremely low prices for very long hours.”<sup>78</sup>

There is a strong argument that federal regulators should be looking at how to structure data platform sectors to both promote more competition and encourage more consumer power within those sectors. Given the near-monopoly of certain platforms in search advertising and social networking, European regulators are already looking closely at the connection between industry concentration and the loss of consumer privacy. Germany’s economy minister Sigmar Gabriel has referred to the big data platforms as engaged in “brutal information capitalism,” while France’s economy minister Arnaud Montebourg has argued that regulators should be looking at tighter regulation, including potentially moving to “unbundling” companies like Google, for example separating its search arm, mobile, YouTube and email services into separate companies.<sup>79</sup>

**Directly Regulate Big Data Platforms to Prohibit Harmful Practices:** On the other hand, encouraging more competition for data platforms and empowering individual users to control their data will still fail to protect many consumers, especially in areas of consumer harm where the danger is obscure, in the future or deliberately concealed.<sup>80</sup> As scholar Frank Pasquale has argued, putting the burden on consumers to discover opportunistic behavior by data platforms is less valuable in many situations than a “collective commitment to privacy.”<sup>81</sup> Federal legislators and regulators should engage in

direct rule-making to protect basic areas of privacy and to disallow third party use of data altogether where likely victimization of various classes of consumers is likely.

One clear step would be to bar data platforms from engaging in price discrimination or from knowingly facilitating price discrimination where different groups are secretly offered different prices by its advertisers for the exact same product or service. As Joseph Stiglitz and Steven Salop argue, government can economize on wasteful information costs in the economy by “eliminating the price dispersion” associated with price discrimination.<sup>82</sup> One broad approach would be to bring the participation of big data platforms in marketing financial services under the regulation of the Consumer Financial Protection Bureau, which should regularly audit their practices to ensure they are not facilitating predatory price discrimination or other financial scams online. The CFPB is tasked not only with regulating abuses by the banking industry, but it is also required to restrain abuses by “larger nonbank participants” in the financial system.<sup>83</sup> Precisely because so many of these predatory offers are hidden from public view, the CFPB could play a prime role in improving data collection and better assessing the financial harm to consumers from these advertiser practices online. By closely overseeing how online advertising players collect and share the personal data they control with financial services firms, many of the abuses that fueled the concern that created the CFPB in the first place could be reined in before consumers fall victim to fraudulent or discriminatory offers.

### **Conclusion: Stemming Rising Economic Inequality by Better Regulation of Big Data Platforms**

As more of the economy moves online, the importance of data mining and asymmetry of control of information becomes ever more critical in economic markets. Addressing this change calls for far more active regulatory action to reverse the trends undermining user privacy and increasing economic inequality due to that rising information asymmetry. Such action should lead to a greater focus on big data platforms sharing the financial bounty of user information with those users, serving both equity and competition.

Data mining of individual privacy is fundamentally reshaping markets by transferring so much knowledge about user interests, behavior and desires into a few corporate hands. Such information asymmetry is easily converted into economic inequality when one side of every transaction has so much more knowledge about the other during bargaining. The last four decades have seen a steady increase in economic inequality,<sup>84</sup> which is only partially explained by standard explanations centered on the rise of economic returns to education, globalized trade and political changes. The increasing information asymmetry in consumer markets, driven by data mining and facilitated by online services may be an additional significant cause of this overall increase in economic inequality.

Government authorities using regulatory tools can stem at least part of this trend by restoring a degree of control by individuals over what personal data is shared online and the financial terms on which that data is shared. This in turn can eliminate some of the information-based inequality in the modern marketplace that is driving overall economic inequality.

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